MISSION TO PLANET EARTH

EARTH OBSERVING SYSTEM (EOS)

CHEMISTRY PROJECT

NASA Cooperative Agreement Notice (CAN)

Soliciting Proposals to Join in Feasibility Assessments Related to the Development of Low Cost Derivatives of Existing Satellites for Earth Observing Missions

CAN5-52808-308
Issued July 10, 1996

National Aeronautics and Space Administration
Goddard Space Flight Center, Code 214.3
Greenbelt, Maryland 20771

COOPERATIVE AGREEMENT NOTICE (CAN) OVERVIEW

This CAN solicits proposals from the community of aerospace firms interested in providing information about low cost satellite concepts which may be applicable to future Earth observing missions. While this information may be used in future evaluations of alternatives for Earth Observing System (EOS) Chemistry as well as other National Aeronautics and Space Administration (NASA) missions, the studies which result are not themselves part of a procurement resulting from a decision to restructure any ongoing mission.

NASA seeks information to capitalize on investments made by industry or Government that may substantially reduce the cost of future missions. In cooperation with NASA, recipients will participate in developing concepts for low cost satellites which are derivatives of existing or imminent flight systems, using EOS Chemistry performance requirements as a model. Therefore, participation in this program is open to any aerospace firm which has developed or is developing a low cost Med-Lite ELV class satellite bus capable of being adapted, if necessary, to carry payloads in the 200Kg to 500Kg range. A recent NASA survey has indicated the existence of low cost satellites designed to meet commercial or other specific needs that may be able to meet the needs of Earth observing missions, like EOS Chemistry. NASA anticipates that offerors will respond with a proposal, describing the planned efforts of a joint study formed by the recipient and NASA's Goddard Space Flight Center (GSFC). It is expected that each recipient and NASA will collaborate, as described in Section 5.0, to perform this effort.

Since there is significant mutual benefit between the recipient(s) and NASA, each recipient is expected to share at least 50% of the cost of this effort. NASA will contribute up to $200K per cooperative agreement. Thus, each participant is expected to at least match the NASA cash contribution in kind.

1. INTRODUCTION

This CAN is a solicitation by NASA/Goddard Space Flight Center (GSFC) for proposals to participate in a design assessment and to make recommendations regarding the future development of low cost Earth observing satellites based on commercial or flight proven design derivatives. This document seeks to obtain proposals for cooperative research directed toward establishing the existence of technologies, concepts and strategies that will enable significant cost reductions for EOS Chemistry if it is reconfigured and for future acquisitions of Earth observing satellites, in general.

2. BACKGROUND

The goal of these studies is to provide information which may be beneficial in the future for the development of satellite systems which are capable of carrying medium sized Earth observing instruments. These are to be derivatives of existing, or imminent, flight systems that have a potential of being produced for substantially lower cost than uniquely-developed spacecraft. In addition, the data generated from these studies will enable NASA to efficiently plan future Earth observing missions. The EOS Chemistry mission is representative of challenging EOS performance requirements; therefore, the Chemistry mission will form the basis for each team's investigation.

3. AUTHORITY

This CAN will result in multiple cooperative agreements as defined in 31 U.S.C. 6305 (the Chiles Act), to be entered into pursuant to the authority of 42 U.S.C. 2451, et seq. (the Space Act).

4. GOALS AND OBJECTIVES

In cooperation with NASA, recipients will participate in developing concepts for low cost satellites which are derivatives of existing or imminent flight systems, using EOS Chemistry performance requirements as a model. This will promote competition for future missions and create valuable data for the planning of future Earth observing missions. NASA expects the recipients to examine feasibility/practicality of medium sized satellite configurations for the following three Chemistry instrument suites: 1) TES, 2) HIRDLS/ODUS, and 3) MLS. Details of the instrument requirements are provided in the attached white paper.

The specific goals of these studies will be to:

1) Develop a spacecraft system concept which dramatically reduces the cost of satellites which meet the exacting performance requirements of Earth observing scientific instruments. This can be through a variety of means, such as: capitalizing on high volume spacecraft production runs, skunk works type environments, use of commercial spacecraft designs, infusion of NASA developed technology.

2) Using the EOS Chemistry mission instrument suite as a "strawman", examine cost driving performance and interface requirements for breakpoints in the cost/performance trade space. For the purposes of this study, assume the Taurus launch vehicle is applicable.

3) Project the following life cycle cost elements: Design Modification, Manufacture, Assembly, Observatory Integration and Test, Launch Support and On-Orbit Initialization.

4) Consider methods of reducing operations costs.

5) Assess the validity of holding spacecraft costs to less than $30M per mission, as a goal.

NASA will award as many of these cooperative agreements as are deemed viable and fundable by the selection team. It is expected that these awards will be made in early August 1996. The duration of each study will be 90 days. It is envisioned that for each study a Spacecraft System Definition Review will be held at approximately 60 days into the study. The recipient will host a final briefing, the contents of which will include Spacecraft System Definition, Cost and Schedule details.

The Government reserves the right to make no selection or to select multiple recipients whose approaches are deemed technically viable to enter into firm fixed price cooperative agreements of up to $200,000 each (Government cash contribution).

5. APPROACHES AND RESPONSIBILITIES

In support of these studies, GSFC and the recipients will examine an approach for obtaining the necessary performance for Earth observing missions at the lowest possible cost.

(1) NASA will host a workshop/symposium among all the recipients to promote the use of NASA developed advanced satellite technology and to discuss the unique characteristics of Earth observing missions.

(2) The recipients will create a conceptual design based upon their own proven or imminently proven flight system that meets the primary Chemistry mission criteria. This will include modeling analyses as appropriate.

(3) The recipients will provide feedback to the Chemistry Project on cost driving requirements and interfaces for both the flight system(s) and operations concepts.

(4) Chemistry Project will hold Spacecraft System Definition and Final Reviews with each recipient. It is intended that these reviews be working meetings to explore the best approach toward producing the necessary spacecraft system performance at the lowest cost.

(5) The recipients will detail schedules and cost estimates for the concept to confirm the assertion that the approach is feasible from a cost and schedule standpoint.

(6) The recipients will document this information in annotated briefing charts suitable for including in summaries to NASA Senior management.

6. LIMITATION OF LIABILITY

No legal liability on the part of the Government for any payment may arise until the cooperative agreement is signed by both parties.

7. CANCELLATION OF CAN

NASA reserves the right to make no awards under this CAN and, in the absence of program funding or for any other reason, to cancel this CAN by having a notice published in the Commerce Business Daily. NASA assumes no liability for canceling the CAN or for anyone's failure to receive actual notice of cancellation. Cancellation may be followed by issuance and synopsis of a revised CAN, since amendment of the CAN is normally not permitted.

8. SCHEDULE

The anticipated schedule for the review and selection of the CAN proposals is as follows:

July 11, 1996	CAN Release
July 24, 1996	Notification of Intention to Propose
August 2, 1996	Proposal Receipt
August 10, 1996	Selection and Award of Cooperative Agreements
Week of August 12, 1996	Symposium/Workshop at GSFC
Week of September 30, 1996	Spacecraft System Definition Reviews
Week of November 4, 1996	Cooperative Agreement Study Results Due

9. EVALUATION PROCESS

The evaluation team will consist of senior level personnel from the Chemistry Project and Mission to Planet Earth Program. The evaluation team will select the offeror(s) determined to be most capable of performing the study, in accordance with the evaluation criteria contained in Section 17. Selection(s) will be announced by GSFC.

If possible, GSFC will proceed directly to selection. If necessary, we will discuss any questions relating to the Cooperative Agreement prior to selection and/or

award. Unsuccessful offerors will be notified and, upon request, debriefed by letter.

10. MILESTONE-BASED PAYMENTS

Meaningful milestones spread throughout the performance period must be proposed. Milestones shall signify performance, technology and/or administrative accomplishments. Given the short duration of these studies, it is anticipated that these milestones will be few in number. Payments will be based upon completion of milestones. Milestones and payments will be finalized prior to selection for award, but the draft cooperative agreement attached to this CAN contains several potential milestones for consideration by the offerors.

11. DATA RIGHTS

NASA intends to protect the recipients' rights to data both developed at its own expense prior to this study and to data that was developed in the course of this study. No data transfer or "cross fertilization" of concepts will be performed by NASA participants, should two or more cooperative agreements be awarded. The results developed under this program will be made available to management for planning of potential future missions. However, NASA also recognizes the potential sensitivity of this data with respect to future procurements. As such, while GSFC will require that the data generated by the recipients be delivered without restriction for dissemination to employees of NASA, of the Jet Propulsion Laboratory (JPL), and of appropriate support contractor personnel, this data will be protected. All support contractor personnel receiving access to the data generated as a part of these studies will be required to execute non-disclosure agreements. The support contracts involved will be required to contain provisions pertaining to the handling of data and organizational conflicts of interest.

12. NON-U.S. ACCESS TO TECHNOLOGY

The performance of this effort may require access to critical technical data, dissemination of which is controlled by the Export Control Act and other U.S. laws and regulations. To be considered responsive for purposes of this CAN, offerors must acknowledge these laws and regulations and agree to comply with the requirements regarding access and dissemination of such technical data.

Research findings and technology developments which result from research conducted under any cooperative agreement(s) awarded through this CAN may constitute a significant enhancement to the national defense, and to the economic vitality of the U.S. Accordingly, access to important research findings and technology developments must be controlled in accordance with applicable laws and regulations, including the provisions of the DOD Industrial Security

Regulation (DoD 5220.22-R) and the Department of Commerce Export Regulation (15CFR 370 et seq.).

13. PROPOSAL FORMAT, CONTENT AND PAGE LIMIT

Proposals submitted in response to this CAN shall be in writing and shall address the elements/issues described in the Evaluation Criteria. The proposal, and any accompanying material, shall be limited to 11 pages. One page shall consist of the Standard Cover Page which is included in this package.

The offeror's sponsoring organization must endorse each proposal. **Only properly endorsed proposals are acceptable.**The Cover Page contains space for this endorsement by an institutional representative authorized to legally bind the institution to perform the proposed effort. If substantial collaborations with other institutions are involved, then letters of endorsement should be submitted by the responsible officials from those institutions. Each endorsement letter should indicate agreement with the nature of the collaboration detailed in the proposal, which should be identified by title and date of submission. All endorsement letters should refer specifically to this CAN.

Proposals are expected to be written concisely in English to minimize the burden on the reviewers and to facilitate the overall evaluation process. The proposal shall be prepared on 8.5" x 11" paper, single- or double spaced, point size 12 or larger, with 1-inch figures (minimum) and captions only. Appendices are not permitted. Double-sided printing is encouraged. Note that reviewers will only read proposals submitted in the correct format, to the maximum page limits listed above. Do not include videotapes, CD-ROMs or other electronic media; they will not be viewed.

14. RESERVED

15. PROPOSAL INSTRUCTIONS

The proposal must contain a discussion of the offeror's activities for carrying out the following:

1) The process for creating a conceptual design that accommodates the Chemistry flights described in the attached White Paper. Specifically, include a brief description of the flight system(s) which will form the basis of this derivative study.

(2) The process for creating cost and schedule estimates for the spacecraft system concepts developed.

(3) The process for examining Chemistry top level requirements and interfaces for cost savings as well as any unique ways the offeror may want to use NASA's participation.

(4) The process for documenting this information in annotated briefing charts suitable for documenting the Spacecraft System Definition and Final Reviews.

(5) The approach for staffing this effort, including the number of people, their time commitment and their skill level. The proposal must name three key individuals who will perform more than half time on the study and provide a short biographical summary. No cost plan is required; however, if the offeror plans to demonstrate the 50% contribution to this effort by including sources other than personnel, these should be enumerated in an easily comprehensible fashion.

If you plan to submit a proposal in response to this CAN, please notify Linda S. Kelley at GSFC on or before July 24, 1996. Ms. Kelley, in Mail Code 214.3, can be reached on 301/286-2094, on 301/286-1742 (fax), or, via E-mail, at linda.s.kelley.1@gsfc.nasa.gov.

16. PROPOSAL QUANTITY AND MAILING ADDRESS

Ten copies of each proposal should be sent to the following address:

U.S. Mail

CAN5-52808-308
NASA/Goddard Space Flight Center
Code 214.3
Greenbelt, MD 20771

Commercial delivery service or hand delivery

CAN5-52808-308
NASA/Goddard Space Flight Center
Building 16W, Room N90
Greenbelt, MD 20771

Proposals shall be received at the above address on or before 4:00 p.m. (Eastern Daylight Time) on **August 2, 1996**. Offerors must either deliver their proposal by U.S. Postal Service Mail or hand deliver (includes the use of a commercial delivery service). Regardless of the delivery method chosen, the proposal must be closed and sealed as if for mailing. Late proposals will not be reviewed. To receive an acknowledgment of receipt of proposal, please attach a

self-addressed, postage-paid postcard to the top proposal copy and it will be mailed back to you.

If the proposal is to be delivered by a commercial delivery service such as United Parcel Service, Federal Express, DHL or Purolator, place the following on the outside of the carrier's envelope or package cover:

CAN5-52808-308

Commercial Delivery Personnel

This proposal must be hand carried directly to Building 16W, Room N90 and received by August 2, 1996. The room is open from 8:00 a.m. to 4:00 p.m. Monday through Friday, except Government holidays.

17. EVALUATION CRITERIA

The proposals will be evaluated on the following:

1) The offeror's industrial, engineering and technological capabilities, as reflected in its description of existing or imminent flight systems, and its approach to performing the study, as provided under "15. PROPOSAL INSTRUCTIONS";

2) The proposed staffing of the study and the team's level of commitment, as demonstrated by a substantial contribution of the total resources to accomplish the goals of the Cooperative Agreement; and

3) Past performance/accomplishments in regard to the production of relevant spaceflight hardware.

Element 1 is significantly more important that elements 2 or 3.

18. NASA RESOURCE SHARING

Recipients of NASA cooperative agreements generally are expected to contribute at least 50% of the total resources required (64 FCR 4). Cooperative agreements based on a lesser contribution require agency approvals at significantly higher levels than agreements based on contributions that meet the 50% requirement. The proposed staffing plan will be used to assess the contribution..

19. REQUIRED PROPOSAL FORMS

The offeror shall submit a completed Standard Cover Page with the proposal.

20. STANDARD COVER PAGE FOR PROPOSALS

These blanks for NASA use only:
Log No.:_____
Date Received:_____
CAN No: CAN5-52808-308

FEASIBILITY ASSESSMENT RELATED TO THE DEVELOPMENT OF LOW COST DERIVATIVES OF EXISTING SATELLITES FOR EARTH OBSERVING MISSIONS
CAN PROPOSAL COVER PAGE

_____
Proposal Title

_____
Name of Lead Institution

_____
Authorizing Institutional Official's Signature and Date

_____
Authorizing Institutional Official's Typed Name and Title

_____
Authorizing Institutional Official's Telephone Number with Area Code

_____
_____
_____
_____
_____
Lead Institutional Address, including Postal Code

_____
_____
_____
_____
_____
Lead Institution's Team Members, including Organizational Unit

21. CAN ATTACHMENTS

The following are attachments to the CAN:

- Draft Cooperative Agreement
- White Paper on Chemistry Project Status